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Revision 2
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Microprocessor Module Replacement Kit for Portable Area Gas Monitors (PAGMs)

Instruction Manual

1. Scope

The Bacharach PAGM family of portable area gas monitors is designed for easy maintenance and enhancement. One element of that design is the ability to replace system programming (firmware) with a simple plug-in microprocessor module, minimizing downtime.

This instruction manual describes how to replace or upgrade the microprocessor module in your PAGM infrared gas leak detector. It is assumed that the user is familiar with the operation of the device. If necessary, refer to the instructions for detailed operation and maintenance information for each PAGM model.

2. Items Required

- Replacement Microprocessor Module Kit (P/N: 3015-5579)
- Medium Phillips head screwdriver
- Original PAGM instruction manual (optional)

WARNING: Failure to comply with these instructions may void the warranty.

3. Procedure Summary

All system settings and configuration settings are returned to factory default values after this upgrade. You may choose to manually record your system settings and configuration values *prior to* performing this upgrade, and then re-configure those settings afterwards. After the upgrade you MUST (at a minimum):

- Reconfigure the infrared (IR) bench emitter power setting
- Reconfigure the DigiPot setting.

After completing these steps, you may then choose to optionally reconfigure any other settings that you recorded earlier.

Note that you may need to refer to the PAGM Instruction Manual originally shipped with your unit for additional detailed information (e.g., configuring the IR bench's emitter power and adjusting the DigiPot). If you no longer have the manual that shipped with your device, the standard PAGM manual may be downloaded from the Bacharach website at www.mybacharach.com. If you have any questions, you may contact Bacharach's Customer Service Department.

NOTE: Before you begin the microprocessor replacement process, be sure to manually record the values of any settings you wish to save, as all configured settings will be returned to their factory default values after the board is replaced. After the microprocessor module is replaced, you may reconfigure these settings.

4. Disassembly of the PAGM

To gain access to the microprocessor board follow the procedure below.
Items Required:

- Medium Phillips head screwdriver

Procedure:

1. Remove monitor and its battery pack from the soft carrying case.
2. Unplug battery pack from monitor.
3. Remove a total of 10 screws from the locations shown in the illustrations below.
4. Carefully separate the metal chassis.

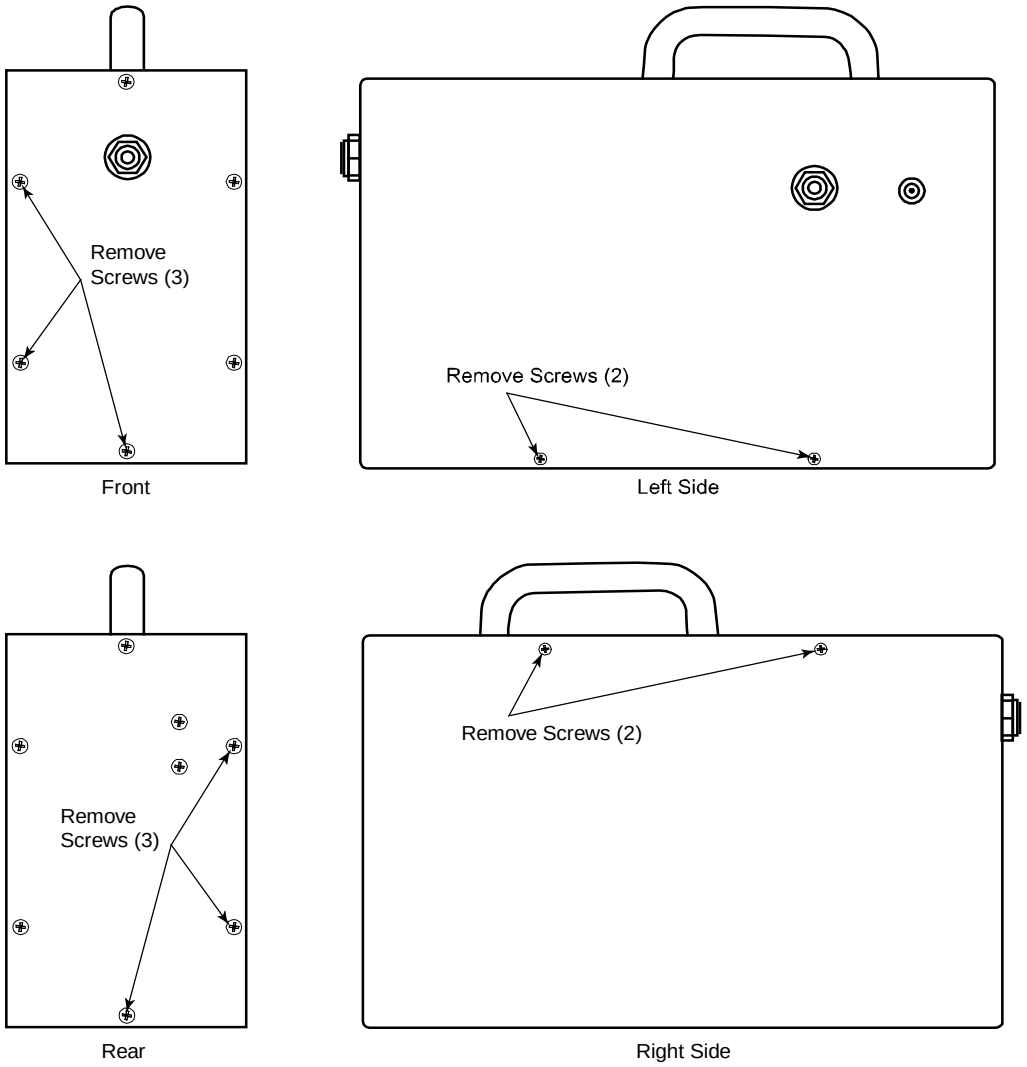

Figure 1. Disassembling the PAGM: Screw Locations

5. Remove the Microprocessor Board

Prepare to remove the old microprocessor module by following the steps below.

Items Required:

- Scissors or wire cutters (to remove a wire tie).
- Medium standard slotted screwdriver
- Wrench for lock nut

Procedure:

1. Dissipate any accumulated static charge by touching a grounded area of bare metal.

> **WARNING**: Failure to touch a metal grounding area on the product can allow static electricity on your clothing or body to damage the monitor or modules. Such damage is not covered under warranty.

2. Locate the red microprocessor module, socketed on the bottom right side of the main circuit board. A cable tie surrounds the main board and the microprocessor module to secure it. Refer to Figure 2. Carefully cut the wire tie to gain access to the microprocessor board.

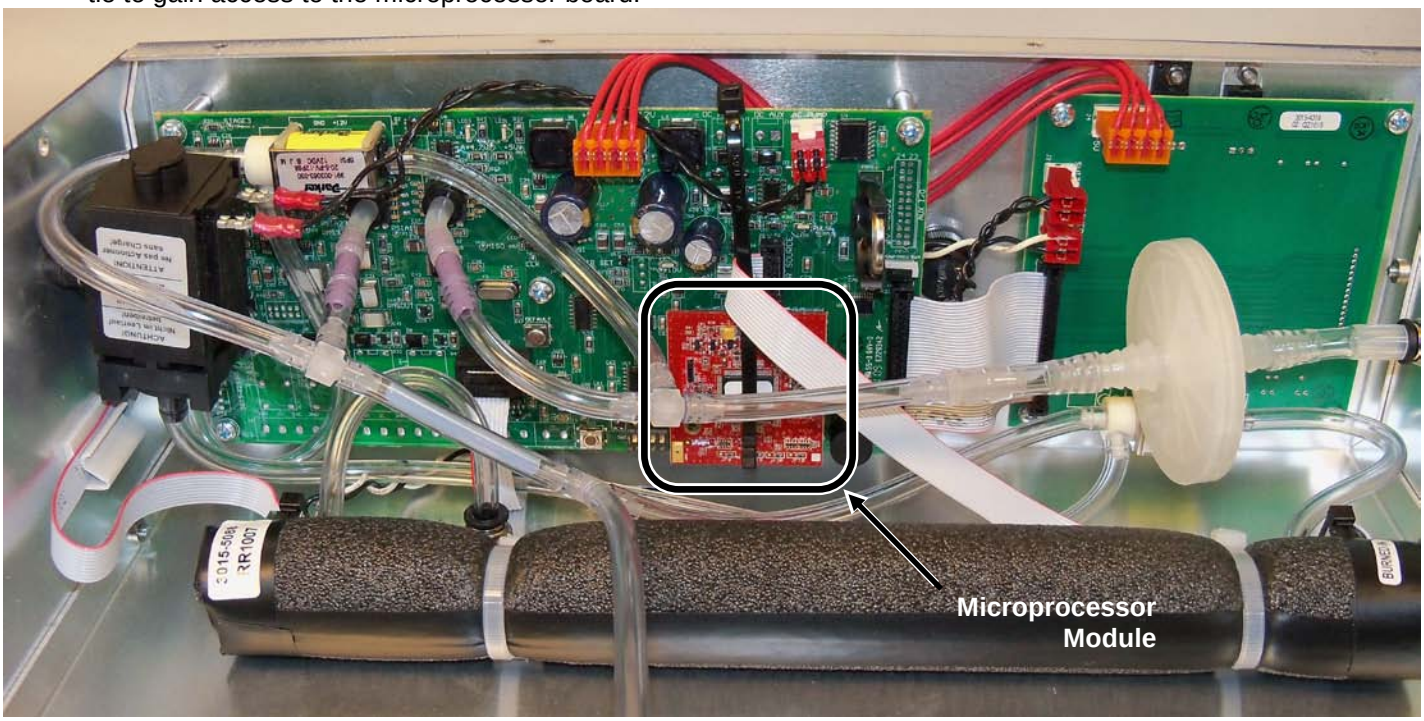

Figure 2. Location of Microprocessor Module Inside the PAGM Housing

3. Note the orientation of the module, specifically the gold tab and hole oriented on the bottom left of the board. Refer to Figure 3.

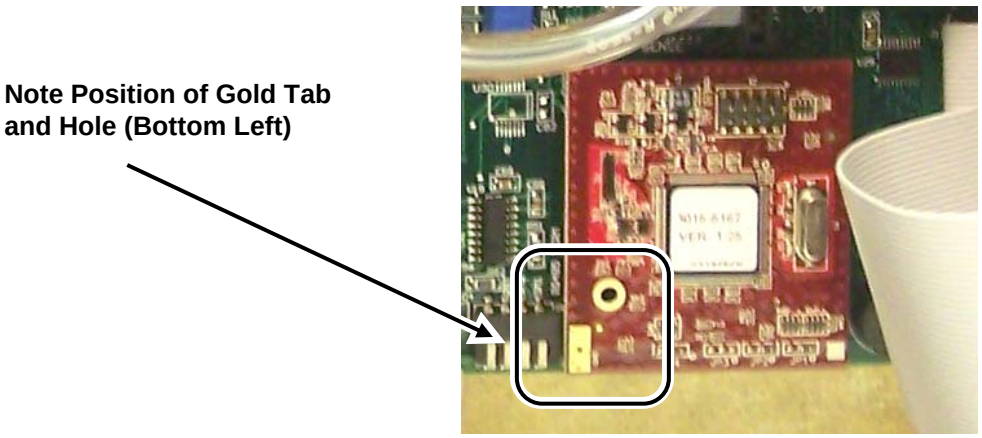

Figure 3. Orientation of Microprocessor Module

4. Grasp the left and right edges of the microprocessor module and gently pull straight out while rocking left to right, until it comes free of the socket.
5. Dispose of the removed microprocessor module in accordance with local regulations for electronic equipment.

Figure 4. Microprocessor Module Removed from PAGM Main Board

6. Installing the New Microprocessor Module

Install the new microprocessor module by following the steps below. Depending on your hardware and the replacement kit that you receive, there are two different installation procedures. One method accommodates different hole sizes in the microprocessor board and the mother board, and uses two screws (0001-1552) and a female-threaded spacer (0304-8289). The other method accommodates the newer microprocessor board and mother board which have the same size holes, and uses a snap-in spacer (0304-8459). Follow the installation option that corresponds to the hardware that is supplied with your kit.

OPTION A: Threaded Spacer and Two Screws

1. Remove the main board from the enclosure by disconnecting all main board connectors, removing mounting screws, and carefully lifting the main board from the enclosure standoffs. (Note that this and other steps may not be required if your microprocessor board is already mounted as shown in Option A.)
2. Attach the threaded standoff to the top of main board by routing one of the screws up through the underside of the main board and securing it to the standoff. Use Figure 5 as a guide.
3. Remove the new microprocessor module from its packaging, handling the board by the edges only.
4. Orient the new microprocessor so the gold tab and hole are at the bottom left corner (refer to Figure 3).
5. Carefully align the two rows of pins on the back of the processor with the mating socket on the main circuit board in the PAGM, then carefully press the microprocessor module firmly into the socket.

NOTE	As a guide, align the larger hole on the microprocessor module with hole in the standoff.

CAUTION	Be sure not to skip or offset the pins to the socket.

6. Feed the second securing screw through the hole in the processor board into the top of the threaded standoff and secure it using the screwdriver. See the figure below.

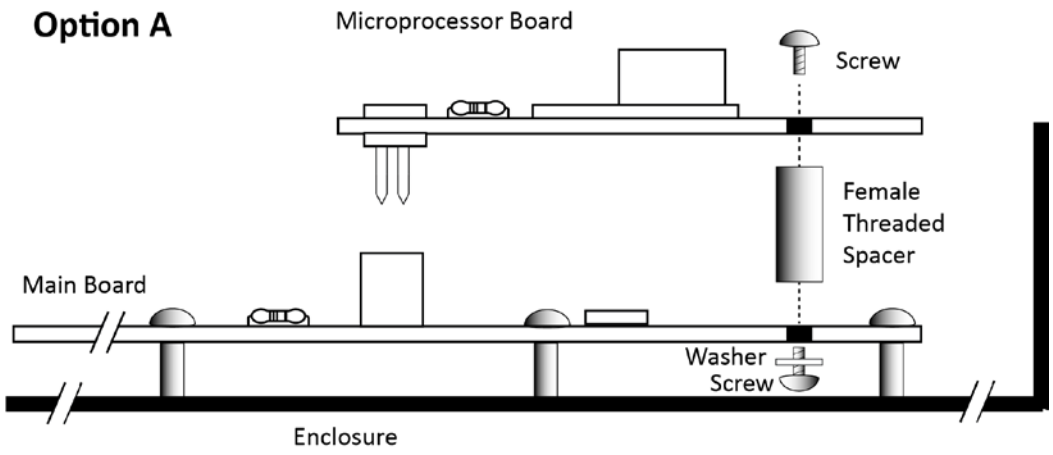

Figure 5. Option A Installation

7. Re-attach the main board to the enclosure by carefully placing the main board onto the enclosure standoffs and securing it with the screws removed earlier.
8. Replace the rear panel and associated connectors by reversing the steps done earlier.
9. Apply power to the PAGM and verify that it performs its initialization procedure.
10. Continue with Section 7.

OPTION B: Snap-in Spacer

1. Insert the plastic snap-in spacer into the securing hole on the mother board. See figure below.

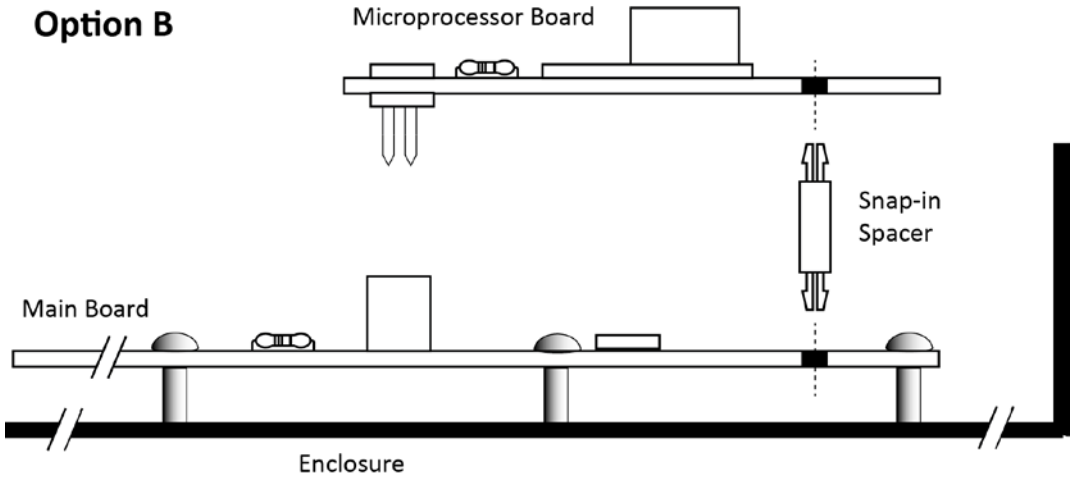

Figure 6. Option B Installation

2. Remove the new microprocessor module from its packaging, being careful to handle the board by the edges only.
3. Orient the new microprocessor so the gold tab and hole are at the bottom left corner (refer to Figure 3).
4. Carefully align the two rows of pins on the back of the processor with the mating socket on the main circuit board of the PAGM, while simultaneously aligning the snap tab on the spacer with the hole in the microprocessor board.

NOTE : As a guide, align the larger hole on the microprocessor module with the top of the snap-in spacer. If aligned properly, the pins will align with the main board socket and the hole in the microprocessor board will align with the top connector of the snap-in spacer.

WARNING: Be sure not to skip or offset the pins to the socket.

5. Ensuring that the pins are properly aligned and the snap-in spacer is in place and properly aligned, press the microprocessor module firmly into the socket while simultaneously securing it to the snap-in spacer.
6. Replace the rear panel and associated connectors by reversing the steps done earlier.
7. Apply power to the PAGM and verify that it performs its initialization procedure.
8. Continue with Section 7.

7. Reconfiguring the PAGM

IMPORTANT: A reset to factory defaults occurs automatically on the first boot up with the new module. Afterwards, the factory menu will be enabled to facilitate the reconfiguring of system settings.

IMPORTANT: Prior to adjusting settings in the Factory menu, you MUST first adjust the Emitter Power and DigiPot settings (in that order) in the Diagnostics menu, followed by the optional reconfiguration of any other settings that you may have recorded earlier.

NOTE: Refer to the PAGM Instruction Manual originally shipped with your unit for additional detailed information about configuring the IR bench's emitter power, DigiPot, and leak source settings. If you no longer have the manual that shipped with your device, the standard PAGM manual may be downloaded from the Bacharach website at www.mybacharach.com. If you have any questions, you may contact Bacharach's Customer Service Department.

1. Adjust the IR bench emitter power first. Refer to the PAGM manual for details.
2. Adjust the IR bench DigiPot setting. Refer to the PAGM manual for details.
3. Restore any additional setup and/or system settings as needed. Refer to the appropriate PAGM manual for details on menus and settings.
4. At this point the reconfiguration is complete.

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